



Frequency of Erectile Dysfunction in Patients Receiving Pegylated Interferon and Ribavirin for the Treatment of Chronic Hepatitis C

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Authors' contributions

This work was carried out in collaboration among all authors. I am the fourth contributor (D). I helped author CD as my trainee to select the topic, supervise the data collection, monitor the study, helped in writing, analysing results and contributed in writing discussion and finalizing the paper. All authors read and approved the final manuscript.

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ABSTRACT

Objective: The purpose behind this study was to determine the frequency of erectile dysfunction in patients receiving pegylated interferon and ribavirin for the treatment of chronic hepatitis C.

Study Design: Prospective observational study.

Setting: Department of Gastroenterology and Hepatology, Medical Unit III, Services Hospital, Lahore.

Period: Six months from 10st July 2017 to 9th January 2018.

Materials and Methods: We have evaluated a total of 130 patients through a consecutive sampling technique who were admitted or visited Out-Patient-Department (OPD) with an underlying diagnosis of hepatitis C virus infection and advise to take anti viral regime (Pegylated interferon and ribavirin combination therapy) for HCV treatment and followed after 12 weeks and 24 weeks for erectile dysfunction.

Results: A total of 130 patients with HCV infection were included. The overall mean age of the patients was 37.4±9.6 years. The overall frequency of erectile dysfunction was 83.07%. Among them, equal percentage of patients at 12 and at week 24 did not have erectile dysfunction (N = 76, 58.5%). While severe erectile dysfunction was surprisingly more common at week 12 (14.61%, N = 19) than at week 24 (13.07%, N = 17) of treatment. Significant association of severe erectile dysfunction was only observed at week 12 in age group 40 – 60 years (p <0.05).

Conclusion: Erectile dysfunction is more common and potential side effect of patients being treated with pegylated interferon and ribavirin but duration of therapy did not affect the prevalence of sexual impairment although with increasing age, the prevalence of sexual dysfunction is significantly increased.

Keywords: Anti viral therapy; Pakistan; erectile dysfunction.

1. INTRODUCTION

Hepatitis C virus (HCV) infection at present is one of the most prevalent viral hepatic infections affecting more than 180 million people worldwide. Pakistan is considered to be the second largest country affected by HCV infection and roughly 4.8% of the population residing in Pakistan is suffering from HCV infection. Among them, more than 58% are genotype 3a positive. Most of the HCV infected patients (80%) develop chronic liver disease when left untreated and converts to end stage liver disease [1,2].

Being the most common chronic liver disease, the treatment with anti viral therapy may reduce the burden of conversion into end stage liver disease, the common treatment which is given to such patients are the combination therapy with interferon and ribavirin and is proved to be effective in terms of biological and virological response but it is associated some minor and potentially major side effects [3,4] and sometimes these side effects may cause hinder in the management of patients with HCV infection. The common side effects of pegylated interferon and ribavirin therapy include non-specific symptoms such as fatigue, muscle aches, headache, low grade fever, gastrointestinal symptoms, bone marrow effects such as anemia, neutropenia and thrombocytopenia; and psychological difficulties such as anxiety, emotional liability, irritability, depression, insomnia and lack of concentration [5-7]. On the other hand, a less discussed side effect of this therapy is the development of sexual impairment in terms of erectile

dysfunction [8,9] and this impairment can vary from mild disease to severe sexual impairment. Around more than 50% of the HCV patients taking this therapy experience mild to moderate sexual impairment and these side effects are due to sex hormones disturbances both in men and women, mainly due to abnormality of the physiology of hypothalamic pituitary gonadal axis [10].

This side effect of therapy can adversely affect the patient's life and emotional well being, and in our routine clinical practice, this aspect of therapy's side effect is not routinely addressed. No previous studies have been done in Pakistan to know about the magnitude of this problem. Based on the aforementioned reasons we have planned to conduct this study so the burden of sexual dysfunction can be determined in HCV patients being treated with combination therapy of ribavirin and interferon. This may help in future in the management of such patients by altering the treatment plan to safest for the betterment of patients and their quality of life.

2. PATIENTS AND METHODS

This study was planned and conducted in the Department of Gastroenterology and Hepatology of a tertiary care Hospital, Medical Unit III, Services Hospital, Lahore, between the periods of one year from 10st June 2018 to 9th May 2019. We have evaluated a total of 130 patients through a consecutive sampling technique who were admitted or visited Out-Patient-Department (OPD) with an underlying diagnosis of hepatitis C virus infection.

All the adult male diagnosed case of HCV infection and having age between 18 years to 60 years and not already taking anti viral therapy for the treatment of HCV infection were included in our study after taking written and informed consent. Patients with diabetes mellitus, taking beta blocker for more than 3 months and anti-depressants for more than 6 months, known cases of sexual dysfunction, and history of alcohol abuse were excluded from the study.

Patients were labeled HCV if they had previously available laboratory investigations or radiological evidence proving the presence of underlying disease. A preformed structured questionnaire was used to collect the relevant data regarding basic demographics such as name, medical record number, age, and gender and clinical data such as type of duration & type of anti viral therapy and prevalence of erectile dysfunction in response to anti viral therapy.

Pegylated interferon and ribavirin combination therapy was then started in dose of 180µg subcutaneous once a week and 400mg orally thrice a day respectively. Erectile dysfunction was assessed at 12 and 24 weeks of start of therapy. Patients were divided into two age groups, group A between 18 to 40 years and group B between 41 – 60 years. For the comparison between categorical variables like erectile dysfunction in different age groups at week 12 and 24, we have used chi-square test and fisher's exact test where needed and a p

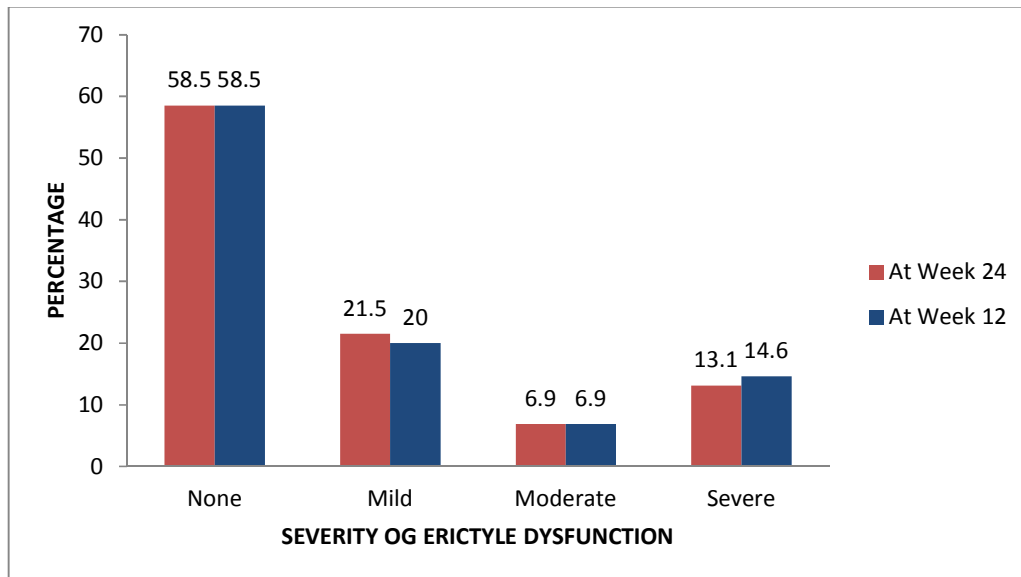
value of <0.05 is considered to be statistically significant.

3. RESULTS

A total of 130 patients with HCV infection were included in this study those who were meeting the already mentioned inclusion and exclusion criteria. The Mean age of the patients was 37.4±9.6 years. The age is stratified into two groups Group A (20 years to 40 years) and group B (40 years – 60 years). Majority of our study participants belongs to group A (N = 84, 64.6%), rest of the descriptive analysis is shown in Table 1.

Our main objective of this study was to determine the frequency of erectile dysfunction in patients receiving pegylated interferon and ribavirin for treatment of chronic HCV infection. The overall prevalence of erectile dysfunction was 83.07% (N = 108). Among them, equal percentage of patients at 12 and at 24 week did not had erectile dysfunction (N = 76, 58.5%). While severe erectile dysfunction was surprisingly more common at 12 (14.61%, N = 19) week than at 24 week (13.07%, N = 17) of treatment. Graph No. 01.

Association of erectile dysfunction with age groups was assessed in Tables 2 and 3. Significant association of severe erectile dysfunction was only observed at week 12 in age group 40 – 60 years.



Graph 1. Severity of erectile dysfunction at week 12 and week 24 (N = 130)

Table 1. Baseline characteristics of study subjects (N = 130)

Variables	Age Group A	Age Group B	p value
	(20 – 40 years) N = 84	(40 – 60 years) N = 46	
Age (Mean ± SD)	31.20±5.21	46.09±8.43	0.001
Area of Residence			
Urban	29	18	0.05
Rural	55	28	
Marital Status			
Single	21	32	0.01
Married	63	14	
Smoker	20	19	0.73
Alcoholic	4	4	0.19
Hypertension	15	23	0.04
Diabetes Mellitus	8	23	0.001

Table 2. Association of erectile dysfunction with age groups during follow-up of hcv patients at week 12 of receiving anti viral therapy (N = 130)

Age (Years)	Erectile dysfunction at 12 weeks				P value
	None (N = 76)	Mild (N = 26)	Moderate (N = 09)	Severe (N = 19)	
20-40 (N = 84)	54	16	04	10	0.17
41-60 (N = 46)	22	10	05	09	0.04

Table 3. Association of erectile dysfunction with age groups during follow-up of HCV patients at week 24 of receiving anti viral therapy (N = 130)

Age (Year)	Erectile dysfunction at 24 weeks				P value
	None (N = 76)	Mild (N = 28)	Moderate (N = 09)	Severe (N = 17)	
20-40 (N = 84)	54	17	04	09	0.29
41-60 (N = 46)	22	11	05	08	0.08

4. DISCUSSION

The relationship of erectile dysfunction and anti viral therapy in patients with hepatitis C virus infection has already been studied in different parts of the world but the actual data and its relative burden in not well established in developing countries including Pakistan. Sexual dysfunction although is more common in men than women but whoever is affected by this disease are vulnerable to psychological issues and also impaired quality of life [9,10].

A study conducted by Danoff and colleagues have reported that sexual dysfunction and impairment is more common in males than females. The level of sexual dysfunction varied

from unsatisfactory sexual activity which is more prevalent and more than 50% of the men complain about it as compared to control group and this relationship was statistically significant when adjusting the age, race, and other potential confounders.

A previously conducted by Dove and colleagues [11] have shown a higher number of men (37%) who reported sexual dysfunction but the degree and severity of sexual dysfunction is mild in which patients loose desire for sex rather than complete sexual dysfunction while more than 44% of same cohort reported. On the other hands, this study also reported a higher number of patients with who experienced post anti viral therapy induced erectile impairment and

ejaculatory impairment, 26% and 22%, respectively. Observations from this study evaluated the patients pretreatment and also 24 week and 48 week after the therapy and reported an overall sexual dysfunction ranging from 38% to 48% in men. This difference is also observed in different ethnicity in which African origin American have shown less sexual impairment as compared to Caucasian American [12].

The sexual arousal disorder in our study population was linked to chronic hepatitis C during treatment with pegylated interferon in combination with ribavirin. In present study at 12 week, 58.5% patients had no erectile dysfunction, 26 patients (20.0%) had mild erectile dysfunction, 9 patients (6.9%) had moderate and 19 patients (14.6%) had severe erectile dysfunction. Similarly, at 24 week, 76 patients (58.5%) patients had no erectile dysfunction, 28 patients (21.5%) had mild erectile dysfunction, 9 patients (6.9%) had moderate and 17 patients (13.1%) had severe erectile dysfunction. Elevated levels of prolactin are associated with sexual dysfunction, such as reduced libido, erectile dysfunction, diminished ejaculate volume and oligospermia [13-15].

Our study's findings will open the thought process for larger scaled studies using the statistical grounds for clinicodemographic variables we have shown in our results. That is why cumulative steps should be taken collectively by the doctors, decisions makers, and government personnel so that by providing the awareness regarding the disease and its outcome the incidence of such disease would be decrease and if patients came to hospital during the early phase the burden of the disease could be reduced along with its associated financial burden and rate or mortality.

5. CONCLUSION

Erectile dysfunction is more common and potential side effect of patients being treated with pegylated interferon and ribavirin but duration of therapy did not affect the prevalence of sexual impairment although with increasing age, the prevalence of sexual dysfunction is significantly increased.

CONSENT

All the adult male diagnosed case of HCV infection and having age between 18 years to 60 years and not already taking anti viral therapy for

the treatment of HCV infection were included in our study after taking written and informed consent.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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